Wellesley - A "Tree City USA"

Wellesley has a long tradition of caring for its trees. Over the years the NRC has worked with the Department of Public Works to establish an ambitious Tree-Planting Program, as well as enacted regulations and maintenance programs which protect and preserve over 3,000 public shade trees. Our town has been named a "Tree City USA" by the Arbor Day Foundation for more than 30 years, honoring our commitment to community forestry. Wellesley has held the "Tree City USA" designation for the longest period of any city or town in New England.

Learn more about how trees help our planet:
(Monthly updates provided by Wellesley resident Enku Kebede-Francis)

July Update
History and Chronology of World Earth Day
Started in the United States in 1970, World Earth Day is commemorated globally every 22 April. Shortly after Rachel Carlson published *The Silent Spring* in 1962 and the movements that followed, in 1970, Senator Gaylord of Michigan, who witnessed excessive pollution in the United States, initiated World Earth Day to highlight the urgency of protecting the environment. That movement succeeded in establishing the EPA, the Clean Air Act, the Clean Water Act and the Endangered Species Act all in the same year. In 1970, on 22 April, twenty million Americans came together at various fora to demand policies to protect the environment, prevent oil spills, air and water pollutions, and the dumping of toxic substances from unregulated factories.

Twenty years later, in 1990, some 141 countries commemorated World Earth Day. It was at this gathering that the importance of recycling was recognized, which made it possible for the creation of the famous Recycling and Disposal facility of Wellesley. Under the motto Reduce, Reuse, Recycle, the Wellesley facility processes all materials and includes a popular book exchange program. In the same year, the UN finalized the World Earth Summit on the environment and a global summit was held in Rio de Janeiro in 1992 that gave the world Agenda 21.

Why do we pay attention to trees? According to the UN:

- *Trees reverse the impacts of land degradation and erosion.*
- *Trees help us achieve economic and environmental sustainability by providing shelter, food and energy as well as beautify our towns and homes.*
- *Trees are renewable and if managed property they provide us income.*
- *Trees filter CO2 to help reduce the effects of climate change locally and globally.*
- *Trees are natural buffers to extreme weather events: hurricanes, floods, and blizzards.*
- *Trees absorb pollutants including nitrogen oxides, ammonia, sulfur dioxide and ozone by trapping them in their leaves and bark. The longer the trees grow and stay in place, the more powerful these protections are. Just imagine living in a desert!*
- *Trees have provided us with lifesaving medicines, for example, just to name two: the willow tree gave us aspirin and the Pacific Yew tree bark gave us the lifesaving medication, taxol. We know science is incomplete and in the absence of knowledge, we should all commit to apply the 'Precautionary Principle" to preserve and protect all trees and promote, endorse and encourage research because there are millions of unidentified tree species that could someday save lives.*

- *Each tree, like all living things, has a footprint and this exhibition accords all trees their rightful places, that is, their exact coordinates in our world, Wellesley, Norfolk County, MA, United States of America, North America (latitude = 42.3N, longitude = -71.3W, area = 10.5 square miles, elevation = 141').*

June Update

All living things in the same category belong to the same species. We also say no two humans, except twins, are alike. What does that mean and how do we know this? With the help of the double-helix structure deoxyribonucleic acid (DNA) we can prove our uniqueness. In 1953, Nobel Laureates, Drs Watson and Crick of Cambridge University, United Kingdom, showed us that the human DNA proves our uniqueness. In 1984, Dr. Jeffreys of the University of Leicester, United Kingdom, linked that uniqueness to help solve the first crime with the help of DNA testing, genetic fingerprinting.

Although, like all sciences, the DNA study is incomplete and we are still finding many more uses of DNA, we have already started to take DNA testing for granted. DNA is now used routinely to solve crimes (convict or exonerate), prove paternity, identify human remains, diagnose diseases, treat patients, in medical research, food science including in genetically modifying plants (GMO). Not only human DNA but also plant DNA has been used to solve crimes, which means the uniqueness that applies to the human species also applies to all living things (zoology and botany). For those interested, there are seven taxonomic hierarchies that are common to all living things, plants and animals: *species, genus, order, class, phylum, kingdom and domain.* Therefore, when we take pictures of Wellesley trees, we can say that no two trees are alike even if they belong to the same species. Each tree that adorns our town is unique.

The town of Wellesley is endowed with many varieties of trees. Now that summer has arrived, deciduous trees have regained all their leaves. We ask you, Wellesley residents, to take pictures of your favorite trees within Wellesley proper to be exhibited throughout the year to commemorate World Earth Day, 22 April 2017. Remember each tree is unique. For example, if you check the DNA of pods and leaves of two willow trees, you will notice their uniqueness, but they belong to the same species.

May Update

All trees including the giant sequoia start from a single seed. All seedlings as they become alive are as fragile as we were the day we were born. If we take care of them, they become strong and some threes could live for multiples of hundreds of years. If trees could talk, they will thank individuals and towns that respect them. We should also find ways to acknowledge their benefits to us, which this exhibition will do. Let us face it, without trees we do not survive. They feed us, protect our environment; provide for our energy, shelter us and sequester dangerous carbon.

Stay tuned for additional information about the exhibition. We will also provide you with scientific information about selected trees throughout the year. We start by honoring the *Sequoiadendron gigantum*, commonly known giant Sequoia. We honor this tree not because it is native to the United States but because it is the largest living thing, the biggest tree in the world and an endangered tree species.

We know from our basic science classes that trees are living things. If so, did you know, at this moment in time, the largest single living thing in the world is the giant sequoia tree. Some of them have lived more than 2,000 years? How do we know the age of a

tree? We count the rings inside a tree once it has fallen, not a day before. So far we have counted 3,500 rings in one sequoia tree, which means that a tree that has lived that long was the oldest known living thing in the world. The tallest known sequoia tree that is alive now has a name, General Sherman, and the second tallest also has a name, King Arthur. They live in the Sierra Nevada Desert in California. They are 275 ft and 270 ft high respectively. The widest trunk belongs to another sequoia tree named Boole that also lives in the same location and is 113 ft wide. Put another way, it will take 23 adults or 42 children to form a circle around Boole. This is awesome!

Learn more about the giant sequoia:
http://www.monumentaltrees.com/en/trees/giantsequoia/biggest_tree_in_the_world